

DaimlerChrysler AG

Patent Claims

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1. An apparatus (2, 2') for the hydroforming of a blank with the aid of a high-pressure fluid, having a die (4, 6) which has a receiving space (8) for a blank (12), characterized in that the die (4, 6) has at least one passage (22, 24, 26, 30, 32, 34) which opens out in the receiving space (8) and through which residual fluid (40) located in the receiving space (8) can be transported out of the receiving space (8).
- 15 2. The apparatus (2, 2') as claimed in claim 1, characterized in that there are suction means which can be used to apply a subatmospheric pressure to the passage (22, 24, 26, 30, 32, 34).
- 20 3. The apparatus (2, 2') as claimed in claim 1 or 2, characterized in that there is a pressure supply which can be used to apply a subatmospheric pressure to the passage (22, 24, 26, 30, 32, 34).
- 25 4. The apparatus (2, 2') as claimed in at least one of the preceding claims, characterized in that the die (4, 6) has lines which open out in the receiving space (8) for supplying and/or removing lubricant (42).
- 30 5. The apparatus (2, 2') as claimed in at least one of the preceding claims, characterized in that the at least one passage (22, 24, 26, 30, 32, 34) is suitable for supplying and/or removing lubricant (42).
- 35 6. A method for operating the apparatus (2, 2') as claimed in one of the preceding claims, characterized in that prior to the deformation of a blank (12),

residual fluid which is present in the receiving space (8) is removed from the receiving space (8) through the passage (22, 24, 26, 30, 32, 34), and in that thereafter lubricant (42) is fed to the receiving space 5 (8) and high-pressure fluid is supplied to the interior of the blank (12).

7. The method as claimed in claim 6, characterized in that the removal of residual fluid is assisted by the 10 application of a subatmospheric pressure or a superatmospheric pressure to the passage (22, 24, 26, 30, 32, 34).

8. A method for operating the apparatus (2, 2') as 15 claimed in one of claims 1 to 5, characterized in that prior to the deformation of a blank (12) residual fluid (40) located in the receiving space (8) is removed from the receiving space (8) through the passage (22, 24, 26, 30, 32, 34) by lubricant (42) being fed to the 20 receiving space (8) in order to displace the residual fluid (40), and in that thereafter high-pressure fluid is supplied to the interior of the blank (12).

9. The method as claimed in one of claims 6 to 8, 25 characterized in that a low-viscosity lubricant (42) is used.